CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No: CTCE/BBMP/W.No.17/KS/BM/Agg.G/2014-15 03.05.2014

Aggregate Gradation Test

IS : 2386 Part I

Client	**Asst. Executive Engineer,** Yeshwanthapura Sub Division, BBMP, Bangalore.
Agency	**Mr. K. Shivakumar,** Contractor, Bangalore.
Name of the work	Providing and laying HDPE Water line in Muthyalanagara Block - 1 in J P Park, Ward No.17, BBMP, Bangalore.
Reference	EE/RRND/Wo.No/235/2013-14 Dated: 07.02.2014
Sample ID	Hotmix Plant, Bangalore.
Type of Mix	Bituminous Macadam
Date of Testing	03.05.2014

Total Weight of Sample: **5100** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH specification
19	325	6.37	6.37	93.63	90-100	
13.2	1650	32.35	38.73	61.27	56-88	
4.75	1470	28.82	67.55	32.45	16-36	
2.36	990	19.41	86.96	13.04	4-19	
0.3	390	7.65	94.61	5.39	2-10	
0.075	150	2.94	97.55	2.45	0-8	

Total Weight of Sample: **5150** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH specification
19	280	5.44	5.44	94.56	90-100	
13.2	1590	30.87	36.31	63.69	56-88	
4.75	1505	29.22	65.53	34.47	16-36	
2.36	925	17.96	83.50	16.50	4-19	
0.3	450	8.74	92.23	7.77	2-10	
0.075	120	2.33	94.56	5.44	0-8	

Note:

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→ The results indicated above are based on the tests carried out on the samples received in the laboratory

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QUALITY CONTROL REPORTS FOR

SEMI DENSE BITUMINOUS CONCRETE

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Job No.: CTCE/BBMP/W.No.17/KS/SDBC(QB)/2014-15 03.05.2014

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

CLIENT	:	**Asst. Executive Engineer,** Yeshwanthapura Sub Division, BBMP, Bangalore.
AGENCY	:	**Mr. K. Shivakumar,** Contractor, Bangalore.
NAME OF THE WORK	:	Providing and laying HDPE Water line in Muthyalanagara Block - 1 in J P Park, Ward No.17, BBMP, Bangalore.
REFERENCE	:	EE/RRND/Wo.No/235/2013-14 Dated: 07.02.2014
SOURCE OF LOCATION	:	Hot mix Plant, Bangalore
DATE OF TESTING	:	03.05.2014

The results of the tests conducted on the bitumen sample.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	68	60 to 70
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	46	Min. 45
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 50
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	294	Min. 220

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Job No.: CTCE/BBMP/W.No.17/KS/SDBC/AIV/2014-15

03.05.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Yeshwanthapura Sub Division, BBMP, Bangalore.
Agency	**Mr. K. Shivakumar,** Contractor, Bangalore.
Name of the Work	Providing and laying HDPE Water line in Muthyalanagara Block - 1 in J P Park, Ward No.17, BBMP, Bangalore.
Reference	EE/RRND/Wo.No/235/2013-14 Dated: 07.02.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	03.05.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	379	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	78	79	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	303	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	20.58	20.68	**20.63**

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Job No.: CTCE/BBMP/W.No.17/KS/SDBC/Shape_T/2014-15 : 03.05.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Asst. Executive Engineer,** Yeshwanthapura Sub Division, BBMP, Bangalore.
Agency	: **Mr. K. Shivakumar,** Contractor, Bangalore.
Name of Work	: Providing and laying HDPE Water line in Muthyalanagara Block - 1 in J P Park, Ward No.17, BBMP, Bangalore.
Reference	: EE/RRND/Wo.No/235/2013-14 Dated: 07.02.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 03.05.2014

Result : Flakiness Index = **11.23%**

Elongation Index = **13.98%**

Result : Combined Flakiness & Elongation index **25.21%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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